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ENGAGE: A Game Based Learning and Problem Solving Framework (Task 1 Month 10)
Progress, Status and Management Report
Monthly Progress Report

Period Covered by the Report
December 1 through December 31, 2012

Date of Report: January 15, 2013

Project Title:
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Submitted by:

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Technical Information

1. Technical Progress / Highlights - Observations

This month we performed the first trials at University Child Development School (UCDS) and Interagency Academy, where we collected gameplay data, pre- and post- test results, and behavioral and affective data. Feedback on technical issues and potential game design improvements was also generated. We are now sorting through the gameplay data and the feedback in order to target specific improvements to the games before the next round of trials (see details below).

With the data in, it is clear that we need to have some infrastructure not only for logging but filtering and analyzing the data as well. To that end, we have written preliminary versions of a variety of scripts to pull the data from the logging database, search for inconsistencies and other potential logging errors, and perform useful transformations on the data before they are brought into a statistical analysis package. The development of these tools will be an ongoing process.

One common question from classroom educators is about the games' support for tablet devices, which are seeing increasing popularity in schools. Partially in response to those requests, we spent some time this month investigating various solutions to bring each of the games to both iOS- and Android-based tablet devices. The test results were very promising and we believe we can have functionally and aesthetically identical versions of the games available on tablets over the next year.

We have selected our Community Manager and she is set to begin at the start of the new year. The Community Manager will play a key role in developing a robust and self-supporting community of teachers and educators around the games through social interactions in the Teacher Portal, as well as through social media channels on education sites such as Edmodo and on the internet at large (Facebook, Twitter, etc.)

2. Results or Problems and Solutions

We found that one of the significant obstacles to learning in games is that some students struggle with the non-math parts of the game mechanics. Students often have varying degrees of prior experience with digital games, which means that the software must not only be fun for kids who have played many games before, but also accommodating to those to whom games are still a new experience. Therefore, we are planning improvements to each of the games in this area:

- Refraction: We will create at least one initial level with pieces already on the board that can be moved in order to show players that pieces can be moved after they are placed – something that some players did not realize. We are also going to tone down the spaceship over- and under-powered animations, as seeing the creatures in distress frightened some of the kids away from experimenting with different configurations of pieces on the board. Finally, we are going to remove red as a potential color for lasers and spaceships (some children have a visceral reaction to the color as they associate it with being wrong in a school setting).

- Creature Capture: When the player hovers over the playing field with a card, we will highlight adjoining tiles in order to show that the surrounding tiles will be affected by the act of placing the card on the selected tile. This is intended to help clear up some lingering confusion of how the game works. We are also going to add some information about how an AI player can take a player's card, and make the AI more "friendly" by preventing it from making any move that takes more than two of the player's cards simultaneously.

- Treefrog Treasure: We are going to increase the visibility of the arc indicator in order to help students plan jumps better (some players were not able to control the frog precisely). Since we

saw some children hopping around apparently without a goal in mind we are also going to place a reminder about the level objective if we detect players not advancing after a certain amount of time. We have also discussed adding specific "jump off" points for the frog before each number line so that we can ensure we don't get into situations where the correct answer to the number line is blocked by the angle of approach from the frog— a problem that some of the students ran into and which caused them to "miss" the numberline even when they knew the right answer.

3. Significant Accomplishments Anticipated During Next Reporting Period

We will have updated versions of the games, many of them with improvements based on feedback from the trials this month, available online through K12 and other sites. These deployments may include the pre- and post-tests as well as some amount of A/B testing. We will also begin to analyze the behavioral and affect data.

4. Publications relevant to this effort

No new research papers were published in the December 1 – 31st timeframe.

5. Meetings and Events (Please include meetings with subcontractors)

- December 10th, 2012. Minneapolis, MN. TIES 2012 Annual Education Technology Conference. "Engaging Learners and Developing Teachers Through Gaming".

6. Changes to the Contract Organization

As we have been discussing in previous reports and other communication, the UTA subcontract will be replaced by internal UW hiring and with external consultants from Stanford University. We have provided what we believe is all of the requested information regarding this change as of December 31st.